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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,553	02/10/2004	Weimin Li	MI22-2497	5458

21567 7590 04/25/2005  
WELLS ST. JOHN P.S.  
601 W. FIRST AVENUE, SUITE 1300  
SPOKANE, WA 99201

EXAMINER
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KOSLOW, CAROL M

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 04/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/776,553

Applicant(s)

LI ET AL.

Examiner

C. Melissa Koslow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 67-74 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 67-74 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date: 2/17/04, 2/10/04
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

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The lined through references cited in the information disclosure statement filed 10 February 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

These references were not considered in U.S. patent 6,719,919.

Reference AP on page 7 is a duplicate of reference AO on page 5 on the PTO-1449 of 10 February 2004.

Claims 67-74 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a composition consisting essentially of  $\text{Si}_3\text{N}_{4/3}$  and  $(\text{CH}_3)_{4/3}\text{Si}_3\text{N}_{8/3}$ , does not reasonably provide enablement for a composition comprising  $(\text{CH}_3)_x\text{Si}_3\text{N}_{4-x}$ , where  $0 < x \leq 4$  or a composition comprising  $(\text{CH}_3)_x\text{Si}_3\text{N}_{4-x}$ , where  $0 < x \leq 4$ , and  $\text{Si}_3\text{N}_{4/3}$ . The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Column 4, lines 20-43 teach the composition consisting essentially of  $\text{Si}_3\text{N}_{4/3}$  and  $(\text{CH}_3)_{4/3}\text{Si}_3\text{N}_{8/3}$  result from the disclosed process. While the specification generally discloses the claimed compositions, there is no teaching as to how these compositions are produced. In addition,  $(\text{CH}_3)_x\text{Si}_3\text{N}_{4-x}$ , where  $0 < x \leq 4$  is an ion having a positive charge of +1.4 to +8. One of ordinary skill in the art would expect this ion to react with the atmosphere and thus the resulting composition of matter would not have the claimed formula. It is noted that  $\text{Si}_3\text{N}_{4/3}$  is an ion having a +4 charge.

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Claims 71-74 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 71 and 74 are indefinite since the remaining about 80 up to less than 100 mol% of the claimed composition of matter is not defined. Claims 72-74 are indefinite since they claim a semiconductor barrier layer without including the support for this layer. *Ex part* Scott, 66 USPQ 371 (PO BdPat App 1945). A semiconductor barrier layer cannot exist without a support. Applicants need to make clear if they are claiming a semiconductor barrier layer composition or a semiconductor comprising the claimed barrier layer.

The Examiner is interpreting claims 72-74 as being directed to a semiconductor barrier layer composition. Accordingly, claims 72-74 are duplicates of claims 67, 68 and 71. Applicant is advised that should claims 67, 68 and 71 be found allowable, claims 72-74 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 67-74 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 2 of U.S. Patent No. 6,719,919. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed composition in the patent falls within the composition claimed in this application.

Claims 68-74 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 7, 8, 11, 12, 17-20, 23-27, 31, 32, 37 and 38 of U.S. Patent No. 6,828,683. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 24-27, 31, 32, 37 and 38 of U.S. Patent No. 6,828,683 teach a device comprising a barrier layer comprising the composition of matter claimed in this application.

The subject matter of claim 67 was subjected to a restriction requirement in Application 09/219,041. The subject matter of claims 68-74(i.e. the barrier layer of claims 72-74) and the composition of matter of claims 68-71 were not part in the claims of Application 09/219,041 and thus were not subjected to a restriction requirement.

U.S. patent 6,627,535 and U.S. patent application publication 2005/0023691 are cited as of interest since they teach methyl doped silicon nitride, which falls within the formula of claim 67. These references have an effective filing date after applicants'.

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U.S. patent 5,711,987 discloses and abandoned U.S. application which teaches forming an amorphous coating comprising silicon, nitrogen and carbon by reacting ammonia and methylsilane using PECVD (col. 10, lines 1-10).


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk  
April 18, 2005

  
C. Melissa Koslow  
Primary Examiner  
Tech. Center 1700